

(54) OPTICAL FIBER GYROSCOPE

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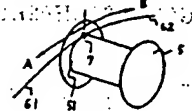
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**PURPOSE:** To minimize phase errors due to temperature changes, by winding an optical fiber in such a manner that points located at an equal distance as opposed from the center position along the length thereof are held almost at the same position.

**CONSTITUTION:** The central position 7 of an optical fiber is set at one end 51 of a drum 5. The fiber 61 on the side A is wound by one layer from the central position 7 to the other end 52 of the drum 5 therealong. The fiber 62 on the side B is wound by two layers in the previous layer. Furthermore, the A and B side fibers 61 and 62 are wound alternately by two layers each on the previous layers to form an optical fiber loop. With such an arrangement, points 611 and 621, 612 and 622... located as opposed to each other at the same distance from the central position 7 are held almost at the same position. Thus, light incident at both ends of the fiber is allowed to pass through parts almost the same in the temperature sequentially regardless of temperature changes in the optical fiber thereby minimizing phase errors.



5: optical fiber drum, 53: center shaft, a: diametrical dir  
b: axial direction

(54) OPTICAL FIBER COIL

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**PURPOSE:** To reduce a zero-point drift in a ring interferometer due to a change in ambient temperature by a method wherein the parts of an optical fiber located at positions symmetric with respect to the middle point thereof are disposed at positions being near spatially.

**CONSTITUTION:** An optical fiber 1 to be coiled is divided in two sections (a) and (b). The boundary 2 of the sections (a) and (b) is set as a point of start of winding on a bobbin 3 and disposed in a one end part (of a first line) of a first layer, and the first (or a third) layer is formed in the section (a) and a second (or fourth) layer in the section (b) by winding in the same (or reverse) direction as indicated by winding directions of arrows 4. A fifth (or seventh) layer is formed in the section (b) and a sixth (or eighth) layer in the section (a) by winding. Thereafter the same winding is repeated every eight layers, and thereby a multilayer optical fiber coil is formed. Since according to this method, the parts of the optical fiber located at positions symmetric with respect to the middle point (the boundary 2) thereof are disposed at positions being near spatially, a zero-point drift in a ring interferometer due to a change in ambient temperature can be reduced.

